



## SEQUENCE LISTING

<110> VisiGen Biotechnologies

<120> REAL-TIME SEQUENCE DETERMINATION

<130> 00007/01UTL

<140> 09/901,782

<141> 2001-07-09

<150> 60/ 216,594

<151> 2000-07-07

<160> 48

<170> PatentIn version 3.1

<210> 1

<211> 38

<212> DNA

<213> Synthetic DNA Sequence

<220>

<221> promoter

<222> (1)..(38)

<223> Synthetic DNA forward promoter for amplifying full-length Ta  
q Pol

I coding sequence. 5' to 3' listing

<400> 1

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38

<210> 2

<211> 37

<212> DNA

<213> Synthetic DNA Sequence

<220>

<221> promoter

<222> (1)..(37)

<223> Synthetic DNA Reverse promoter for amplifying full-length  
Taq P

ol I coding sequence. 5' to 3' listing.

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gcgaattcac cctccttggc ggagcgccag tcctccc  
37

<210> 3  
<211> 37  
<212> DNA  
<213> Synthetic DNA Sequence

<220>  
<221> promoter  
<222> (1)..(37)  
<223> Synthetic DNA promoter for truncated Taq Pol I coding sequence.  
5' to 3' listing.

<400> 3  
aatccatggg ccctggagga ggccccctgg cccccgc  
37

<210> 4  
<211> 32  
<212> DNA  
<213> Thermus aquaticus

<220>  
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<222> (14)..(16)  
<223> Site 643 of Taq Pol I: Alanine codon, gcc, to cyseine codon,  
tgc:  
5' to 3' listing

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ccacacggag acctgcagct ggatgttcgg cg  
32

<210> 5  
<211> 32  
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<220>

<221> Mutation  
 <222> (17)..(19)  
 <223> Site 643 of complement strand of Taq Pol I: alanine antisens  
 e cod on, ggc, to cysteine antisense codon, gca. 5' to 3' listing.

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 cgccgaacat ccacgagcag gtctccgtgt gg  
 32

<210> 6  
 <211> 35  
 <212> DNA  
 <213> Thermus aquaticus

<220>  
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 <222> (15)..(17)  
 <223> Mutant Taq Pol 1: site 647 phe to cys codon mutation: ttc ->  
 tgc.  
 5' to 3' listing

<400> 6  
 ccgccagctg gatgtgcggc gtccccggg aggcc  
 35

<210> 7  
 <211> 35  
 <212> DNA  
 <213> Thermus aquaticus

<220>  
 <221> Mutation  
 <222> (19)..(21)  
 <223> Taq Pol I Compliment Strand: Site 647 phe to cys mutation: g  
 aa ->  
 gca. 5' to 3' listing.

<400> 7  
 ggccctccgg gggacgccgc acatccacgt ggcgg  
 35

<210> 8  
 <211> 37  
 <212> DNA  
 <213> *Thermus aquaticus*  
  
 <220>  
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 <222> (19)..(21)  
 <223> Taq Pol I Mutation: Site 649 val to cys: gtc -> tgc. 5' to 3'  
 ' lis  
 ting.

<400> 8  
 gccagctgga tgttcggctg cccccgggag gccgtgg  
 37

<210> 9  
 <211> 37  
 <212> DNA  
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 <221> Mutation  
 <222> (17)..(19)  
 <223> Taq Pol I Mutation complimentary strand: Site 649 val to cys  
 : gac  
 -> gca. 5' to 3' listing.

<400> 9  
 ccacggcctc ccgggggag ccgaacatcc agctggc  
 37

<210> 10  
 <211> 36  
 <212> DNA  
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 c. 5  
 ' to 3' listing.

<400> 10  
 ggcggtcccc ggtgcgccgt ggacccccctg atgcgc  
 36

<210> 11  
 <211> 36  
 <212> DNA  
 <213> Thermus aquaticus

<220>  
 <221> Mutation  
 <222> (22)..(24)  
 <223> Taq Pol I Mutation Complimentary Strand: AA Site 652 glu to  
 cys:  
 antisense codon: ctc -> gca. 5' to 3' listing.

<400> 11  
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 36

<210> 12  
 <211> 36  
 <212> DNA  
 <213> Thermus aquaticus

<220>  
 <221> Mutation  
 <222> (16)..(18)  
 <223> Taq Pol I Mutation: AA Site 653 ala to cys: codon: gcc -> tg  
 c. 5  
 ' to 3' listing.

<400> 12  
 ggcggtcccc gggagtgcgt ggacccccctg atgcgc  
 36

<210> 13  
 <211> 36  
 <212> DNA  
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<220>

<221> Mutation  
 <222> (19)..(21)  
 <223> Taq Pol I Mutation Complimentary Strand: AA Site 653 ala to  
 cys:  
 antisense codon: ggc -> gca. 5' to 3' listing.

<400> 13  
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 36

<210> 14  
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 <212> DNA  
 <213> Thermus aquaticus

<220>  
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 ' to  
 3' listing.

<400> 14  
 gtcccccgagg aggcctgtga cccctgatg cgc  
 33

<210> 15  
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 <212> DNA  
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<220>  
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 <222> (16)..(18)  
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 cys:  
 antisense codon: cac -> aca. 5' to 3' listing.

<400> 15  
 gcgcattcagg ggggtcacagg cctccccgggg gac  
 33

<210> 16  
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<220>  
 <221> Mutation  
 <222> (16)..(18)  
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<400> 16  
 ccccgaggagg ccgtgtgccc cctgatgcgc cgg  
 33

<210> 17  
 <211> 33  
 <212> DNA  
 <213> Thermus aquaticus

<220>  
 <221> Mutation  
 <222> (16)..(18)  
 <223> Taq Pol I Mutation Complimentary Strand: AA Site 655 asp to  
 cys:  
 antisense codon: gtc -> gca. 5' to 3' listing.

<400> 17  
 ccggcgcatc aggggggcaca cggcctcccg ggg  
 33

<210> 18  
 <211> 33  
 <212> DNA  
 <213> Thermus aquaticus

<220>  
 <221> Mutation  
 <222> (16)..(18)  
 <223> Taq Pol I Mutation: AA 656 pro to cys: codon: ccc -> tgc. 5'  
 to 3  
 ' listing.

<400> 18

cgggagggcgg tggactgcct gatgcgccgg gcg  
33

<210> 19  
<211> 33  
<212> DNA  
<213> *Thermus aquaticus*

<220>  
<221> Mutation  
<222> (16)..(18)  
<223> Taq Pol I Mutation Complimentary Strand: AA Site 656 pro to  
cys:  
          antisense codon: ggg -> gca. 5' to 3' listing.

<400> 19  
cgcccggcgc atcaggcagt ccacggcctc ccg  
33

<210> 20  
<211> 30  
<212> DNA  
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<220>  
<221> Mutation  
<222> (13)..(15)  
<223> Taq Pol I Mutation: AA 657 leu to cys: codon: ctg -> tgc. 5'  
to 3  
      ' listing.

<400> 20  
gccgtggacc cctgcatgcg ccgggcggcc  
30

<210> 21  
<211> 30  
<212> DNA  
<213> *Thermus aquaticus*

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<221> Mutation  
<222> (16)..(18)



<223> Taq Pol I Mutation Complimentary Strand: AA Site 657 leu to cys:

antisense codon: cag -> gca. 5' to 3' listing.

<400> 21  
ggccgcccgg cgcattgcagg ggtccacggc  
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<210> 22  
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<212> DNA  
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<400> 22  
gccgtggacc ccctgtgtcg ccgggcggcc  
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<210> 23  
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<220>  
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<222> (13)..(15)  
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antisense codon: cat -> gca. 5' to 3' listing.

<400> 23  
ggccgcccgg cgacacaggg ggtccacggc  
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<210> 24  
<211> 36

<212> DNA  
 <213> *Thermus aquaticus*  
  
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 <223> Taq Pol I Mutation: AA 659 arg to cys: codon: cgc -> tgc. 5'  
       to 3  
       ' listing.

<400> 24  
 gccgtggacc ccctgatgtg ccggggcggcc aagacc  
       36

<210> 25  
 <211> 36  
 <212> DNA  
 <213> *Thermus aquaticus*

<220>  
 <221> Mutation  
 <222> (16)..(18)  
 <223> Taq Pol I Mutation Complimentary Strand: AA Site 659 arg to  
 cys:  
       antisense codon: gcg -> gca. 5' to 3' listing.

<400> 25  
 ggtcttggcc gcccggcaca tcaggggggtc cacggc  
       36

<210> 26  
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<220>  
 <221> Mutation  
 <222> (16)..(18)  
 <223> Taq Pol I Mutation: AA 660 arg to cys: codon: cgg -> tgc. 5'  
       to 3  
       ' listing.

<400> 26

gacccocctga tgcgctgcgc ggccaagacc atc  
33

<210> 27  
<211> 33  
<212> DNA  
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<220>  
<221> Mutation  
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<223> Taq Pol I Mutation Complimentary Strand: AA Site 660 arg to  
cys:  
antisense codon: ccg -> gca. 5' to 3' listing.

<400> 27  
gatgggtcttg gccgcgcagc gcatcagggg gtc  
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<210> 28  
<211> 33  
<212> DNA  
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<220>  
<221> Mutation  
<222> (16)..(18)  
<223> Taq Pol I Mutation: AA 661 ala to cys: codon: gcg -> tgc. 5'  
to 3  
' listing.

<400> 28  
cccctgatgc gccggtgcgc caagaccatc aac  
33

<210> 29  
<211> 33  
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<220>  
<221> Mutation  
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<223> Taq Pol I Mutation Complimentary Strand: AA Site 661 ala to  
 cys:  
     antisense codon: cgc -> gca. 5' to 3' listing.

<400> 29  
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     33

<210> 30  
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 <212> PRT  
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<220>  
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<400> 30

Cys	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Ala	Val	Asp	Pro	Leu	Met
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Arg Arg Ala

<210> 31  
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 <212> PRT  
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<220>  
 <221> Variant  
 <222> (5)..(5)  
 <223> Taq Pol I Variant: AA Site 647 phe to cys replacement.

<400> 31

Ala	Ser	Trp	Met	Cys	Gly	Val	Pro	Arg	Glu	Ala	Val	Asp	Pro	Leu	Met
1				5					10					15	

Arg Arg Ala

<210> 32  
 <211> 19  
 <212> PRT  
 <213> Thermus aquaticus

<220>  
 <221> Variant  
 <222> (7)..(7)  
 <223> Taq Pol I Variant: AA Site 649 val to cys replacement.

<400> 32

Ala	Ser	Trp	Met	Phe	Gly	Cys	Pro	Arg	Glu	Ala	Val	Asp	Pro	Leu	Met
1				5					10					15	

Arg Arg Ala

<210> 33  
 <211> 19  
 <212> PRT  
 <213> Thermus aquaticus

<220>  
 <221> Variant  
 <222> (10)..(10)  
 <223> Taq Pol I Variant: AA Site 652 glu to cys replacement.

<400> 33

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Cys	Ala	Val	Asp	Pro	Leu	Met
1				5					10					15	

Arg Arg Ala

<210> 34  
 <211> 19

<212> PRT  
 <213> Thermus aquaticus

<220>  
 <221> Variant  
 <222> (11)..(11)  
 <223> Tag Pol I Variant: AA Site 653 ala to cys replacement.

<400> 34

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Cys	Val	Asp	Pro	Leu	Met
1				5					10					15	

Arg Arg Ala

<210> 35  
 <211> 19  
 <212> PRT  
 <213> Thermus aquaticus

<220>  
 <221> Variant  
 <222> (12)..(12)  
 <223> Tag Pol I Variant: AA Site 654 val to cys replacement.

<400> 35

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Ala	Cys	Asp	Pro	Leu	Met
1				5					10					15	

Arg Arg Ala

<210> 36  
 <211> 19  
 <212> PRT  
 <213> Thermus aquaticus

<220>  
 <221> Variant  
 <222> (13)..(13)

<223> Taq Pol I Variant: AA Site 655 asp to cys replacement.

<400> 36

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Ala	Val	Cys	Pro	Leu	Met
1				5					10					15	

Arg Arg Ala

<210> 37

<211> 19

<212> PRT

<213> Thermus aquaticus

<220>

<221> Variant

<222> (14)..(14)

<223> Taq Pol I Variant: AA Site 656 pro to cys replacement.

<400> 37

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Ala	Val	Asp	Cys	Leu	Met
1				5					10					15	

Arg Arg Ala

<210> 38

<211> 19

<212> PRT

<213> Thermus aquaticus

<220>

<221> Variant

<222> (15)..(15)

<223> Taq Pol I Variant: AA Site 657 leu to cys replacement.

<400> 38

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Ala	Val	Asp	Pro	Cys	Met
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<210> 39
<211> 19
<212> PRT
<213> Thermus aquaticus

<220>
<221> Variant
<222> (16)..(16)
<223> Taq Pol I Variant: AA Site 658 met to cys replacement.
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<212> PRT
<213> Thermus aquaticus

<220>
<221> Variant
<222> (17)..(17)
<223> Taq Pol I Variant: AA Site 659 arg to cys replacement.
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Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met  
1 5 10 15

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<210> 41  
 <211> 19  
 <212> PRT  
 <213> *Thermus aquaticus*  
 <220>  
 <221> Variant  
 <222> (18)..(18)  
 <223> Taq Pol I Variant: Site 660 arg to cys replacement.

<400> 41

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Ala	Val	Asp	Pro	Leu	Met
1				5					10					15	

Arg Cys Ala

<210> 42  
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 <212> PRT  
 <213> *Thermus aquaticus*  
 <220>  
 <221> Variant  
 <222> (19)..(19)  
 <223> Taq Pol I Variant: Site 661 ala to cys replacement.

<400> 42

Ala	Ser	Trp	Met	Phe	Gly	Val	Pro	Arg	Glu	Ala	Val	Asp	Pro	Leu	Met
1				5					10					15	

Arg Arg Cys

<210> 43  
 <211> 6  
 <212> PRT  
 <213> *Thermus aquaticus*

<220>  
<221> Variant  
<222> (1)..(1)  
<223> Taq Pol I Variant: Site 513 ser to cys replacement.

<400> 43

Cys Thr Ser Ala Ala Val  
1 5

<210> 44  
<211> 6  
<212> PRT  
<213> Thermus aquaticus

<220>  
<221> Variant  
<222> (2)..(2)  
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<400> 44

Ser Cys Ser Ala Ala Val  
1 5

<210> 45  
<211> 6  
<212> PRT  
<213> Thermus aquaticus

<220>  
<221> Variant  
<222> (3)..(3)  
<223> Taq Pol I Variant: Site 515 ser to cys replacement.

<400> 45

Ser Thr Cys Ala Ala Val  
1 5

<210> 46  
<211> 6

<212> PRT  
<213> Thermus aquaticus  
  
<220>  
<221> Variant  
<222> (4)..(4)  
<223> Taq Pol I Variant: Site 516 ala to cys replacement.

<400> 46

Ser Thr Ser Cys Ala Val  
1 5

<210> 47  
<211> 6  
<212> PRT  
<213> Thermus aquaticus

<220>  
<221> Variant  
<222> (5)..(5)  
<223> Taq Pol I Variant: Site 517 ala to cys replacement.

<400> 47

Ser Thr Ser Ala Cys Val  
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<210> 48  
<211> 6  
<212> PRT  
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<220>  
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<223> Taq Pol I Variant: Site 518 val to cys replacement.

<400> 48

Ser Thr Ser Ala Ala Cys  
1 5

